

REMARKS/ARGUMENTS

Claims 1-47 are presently active in this case, Claims 1, 5 and 26 amended by way of the present amendment.

In the outstanding Office Action, Claims 32-44 were withdrawn from further consideration; Claims 1, 4, 10 and 11 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 2002/0050246 to Parkhe; Claims 5-7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Parkhe; Claims 13-20 and 26-31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Parkhe in view of U.S. 3,909,917 to Lebedev et al.; Claims 2, 3, 8, 9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Parkhe in view of U.S. 5,280,156 to Niori et al.; Claims 21-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Parkhe in view of Lebedev et al. and in further view of Niori et al.; Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parkhe in view of U.S. 5,078,851 to Nishihata et al.; Claims 45-47 were rejected under 35 U.S.C. 103(a) as being unpatentable over Parkhe in view of U.S. 6,051,074 to Strodtbeck et al.

Turning now to the merits, in order to expedite issuance of a patent in this case, Applicants have amended Claim 1 and 26 to clarify the present invention over the cited references. For example, amended Claim 1 recites a substrate holder including a supporting surface, a cooling component having a plurality of cooling channels configured to receive a cooling fluid and a heating component positioned adjacent to the supporting surface and between the supporting surface and the cooling component. Also recited is a fluid gap positioned between the cooling component and the heating component such that the fluid gap is interposed between the plurality of cooling channels of the cooling component and heating component. The fluid gap is configured to receive a fluid to vary the thermal conductance between the cooling component and the heating component; and a brazing material disposed

between the cooling component and the heating component, the brazing material disposed adjacent to the fluid gap.

Thus, Claim 1 has been amended to clarify that a cooling component has a plurality of cooling channels configured to receive a cooling fluid, and that the fluid gap is interposed between the plurality of cooling channels of the cooling component and heating component. Claim 26 has been similarly amended to include these features. An example structure covering these features is shown in Figures 2 and 3 of Applicants' specification. As seen in these figures, the cooling component 60 includes an upper cap 62 having grooves therein, and a lower cap 64 which closes the grooves of the upper cap to form channels 66. A heating component 50 is provided on top of the assembled cooling component 60. Interposed between the heating and cooling components is a brazing material 84 (Fig. 3) for connecting these components, and a fluid gap 90 (Fig. 2) for receiving a fluid to change the thermal conductivity across the gap. As best seen in Fig. 2, the fluid gap extends along several of the channels 66. Grooves 70 are also provided between the heating and cooling components in an effort to prevent the brazing material from entering the fluid gap area 90.

The primary reference to Parkhe discloses a process chamber having a temperature controlled substrate holder. As seen in Fig. 2A, the substrate holder includes a cooling plate 107, 207 having cooling channels 236 therein. An electrostatic chuck 105 is provided on top of the cooling plate in Fig. 2B and may be connected by brazing. Further, Parkhe discloses that the electrostatic chuck can be replaced with a heating plate to provide a heating plate adjacent to the cooling plate. However, Parkhe does not disclose that there is a fluid gap between the cooling plate and the electrostatic chuck 105 (or heating plate).

In this regard, the Office Action points to the channels 236 as teaching the claimed fluid gap. As noted above, however, the claim amendments now clarify that the fluid gap is separate from the cooling channels. In particular, Parkhe does not disclose a fluid gap is

interposed between the plurality of cooling channels of the cooling component and the heating component, as now required by Claims 1 and 26. Moreover, independent Claim 45 includes at least this structure in means-plus-function format. Thus, independent Claims 1, 26 and 45 patentably define over Parkhe.

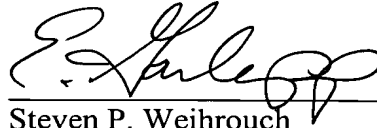
Further, the secondary references to Lebedev et al., Niori et al., Nishihata et al. and Strodtbeck et al. are not cited for any teaching of a fluid gap, and in fact cannot correct the deficiency of Parkhe. Even assuming that a fluid gap can be found in the prior art, Applicants also submit that it would not be obvious for one of ordinary skill in the art to include both a fluid gap and a brazing material at the intersection of heating and cooling plates as required by the claims. As discussed in Applicants' specification, such a gap could be filled with the brazing material. Thus, one of ordinary skill in the art would avoid providing a fluid gap near the brazing material. It is the present inventors who discovered that this combination can be achieved by use of a groove for preventing the flow of brazing material. The cited references do not render this discovery obvious.

For the reasons discussed above, independent Claims 1, 26 and 45 patentably define over the cited references. As the remaining examined claims depend from one of these independent claims, the remaining examined claims also patentably define over the cited references.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.



Steven P. Weihrouck
Attorney of Record
Registration No. 32,829

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 07/09)

Edwin D. Garlepp
Registration No. 45,330

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